

AMENDMENT TO THE CLAIMS

1. (previously presented): A method of obtaining single spheres for use in making self assembled opal structures, comprising:

obtaining a plurality of spherical particles;  
placing the spherical particles in a centrifuge;  
spinning the centrifuge to apply centrifugal force  
to the spherical particles; and  
separating single spheres from doublets using a relative  
difference in sedimentation velocity in response to  
centrifugal force.

2. (previously presented): The method of claim 1 including depositing the single spheres onto a substrate.

3. (currently amended): The method of claim 2 wherein the depositing comprising placing the substrate in a fluid containing the single spheres and drying drawing the substrate through a meniscus of the fluid at a declination angle between the substrate and the meniscus.

4. (previously presented): The method of claim 1 including forming a three-dimensional photonic crystal with the single spheres.

5. (previously presented): The method of claim 4 including providing a waveguide within the three-dimensional photonic crystal.

6. (previously presented): A method of making a three-dimensional photonic crystal comprising:

providing a plurality of spheres carried in a suspension;

drawing a substrate through a meniscus formed in the suspension and at a declination angle relative to the meniscus.

7. (previously presented): The method of claim 6 wherein the angle is about 60°.

8. (previously presented): The method of claim 6 including burying a waveguide within the photonic crystal structure.

9. (previously presented): A method of making a photonic crystal structuring including a waveguide, comprising:

    placing a waveguide support on a substrate;  
    placing a waveguide on the waveguide support;  
    burying the waveguide in a photonic bandgap crystal.

10. (previously presented): The method of claim 9 including forming an inverse opal structure.

11. (previously presented): A method of making a three-dimensional photonic crystal including a buried waveguide, comprising:

    depositing a first layer of photonic crystal on a substrate;  
    depositing a waveguide on the first layer of photonic crystal;  
    depositing a second layer of photonic crystal on the first layer of photonic crystal and the waveguide.

12. (previously presented): The method of the claim 11 including forming an inverse opal structure in the photonic crystal.